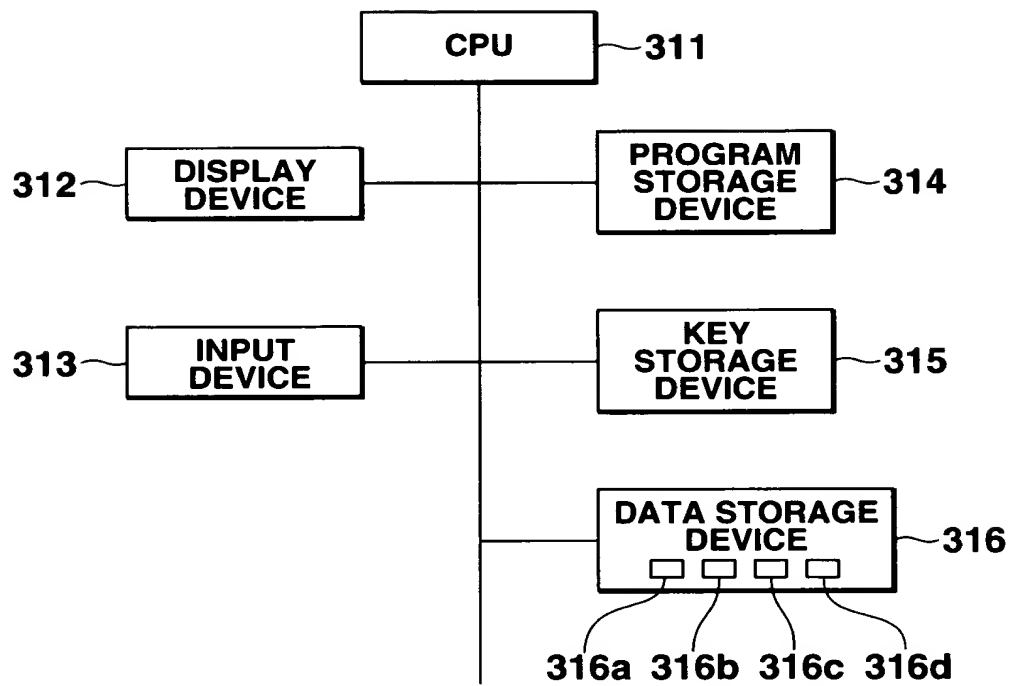


00360" 4202960



**FIG.1**

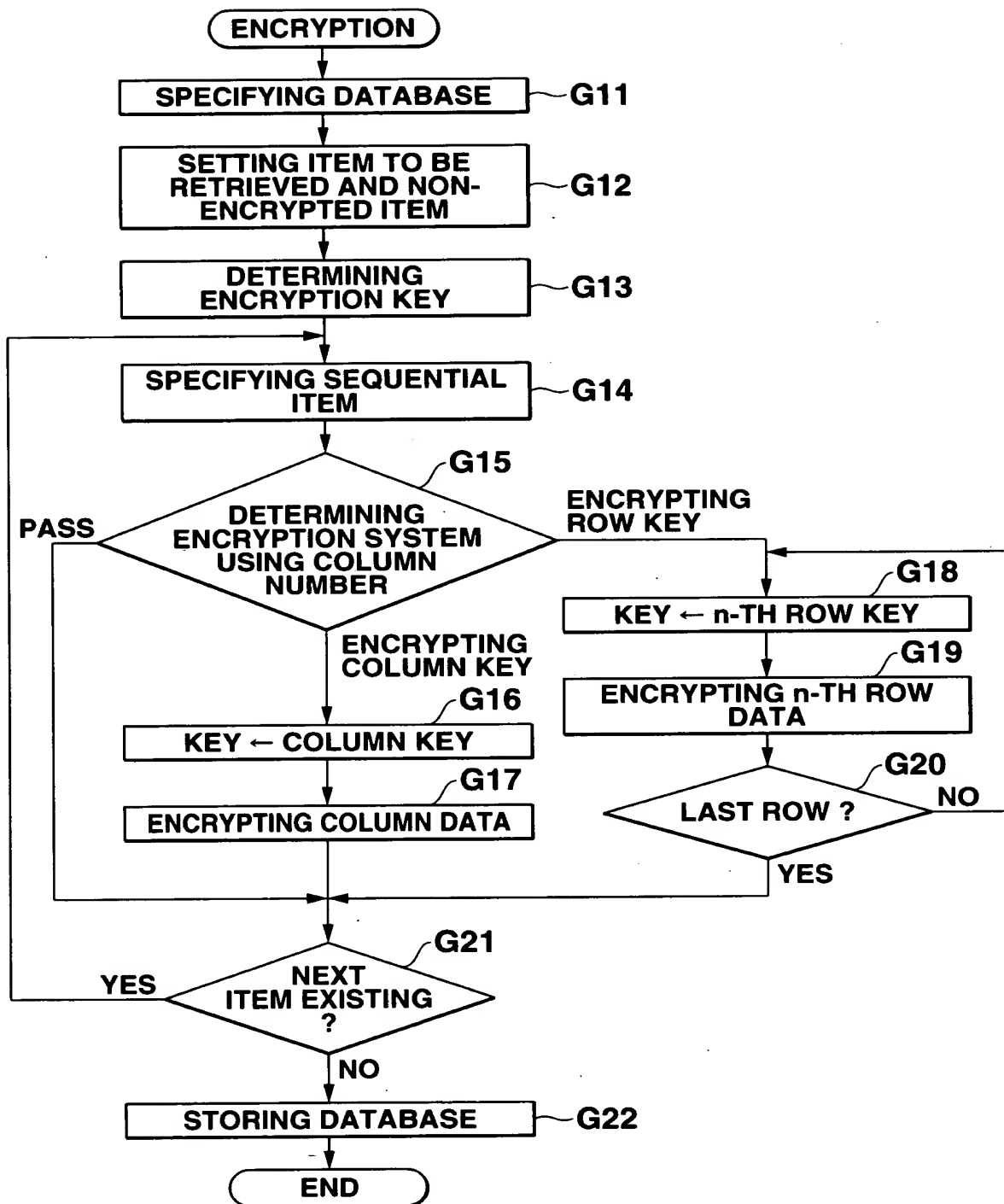
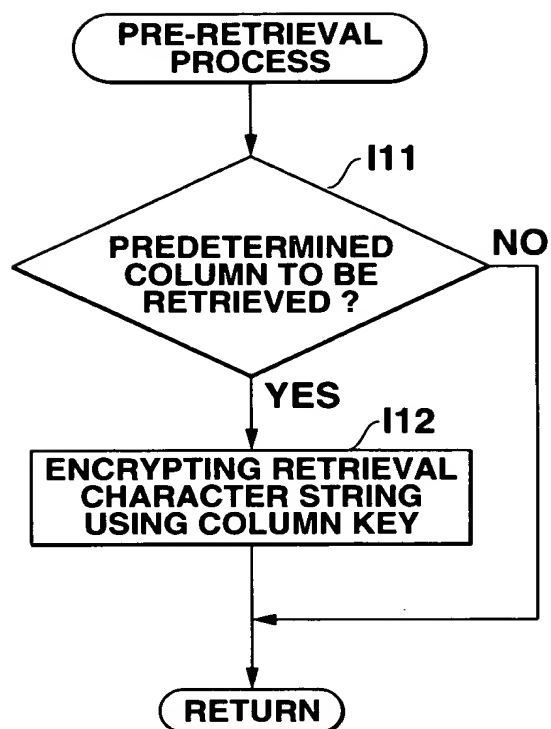


FIG.2

```

graph TD
    A([SEARCHING  
DATABASE]) --> B[INPUTTING RETRIEVAL  
INFORMATION (COLUMN  
ITEM TO BE RETRIEVED,  
RETRIEVAL CHARACTER  
STRING)]
    B --> C[PRE-RETRIEVAL  
PROCESS]
    C --> D[RETRIEVING  
PROCESS]
    D --> E[RETRIEVAL RESULT  
OUTPUTTING PROCESS]
    E --> F([END])
    B -.-> H11[H11]
    C -.-> H12[H12]
    D -.-> H13[H13]
    E -.-> H14[H14]

```



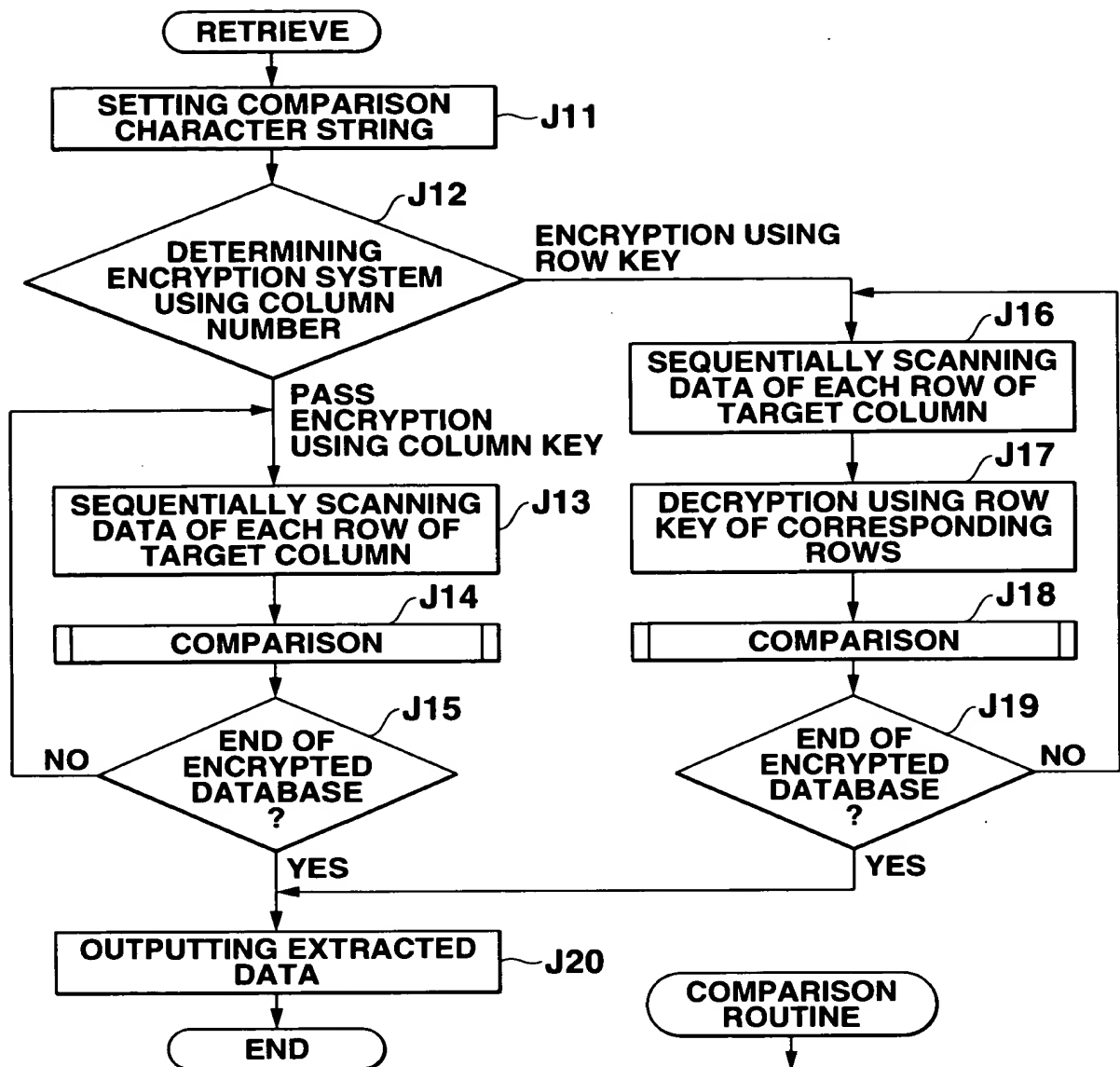


FIG.4A

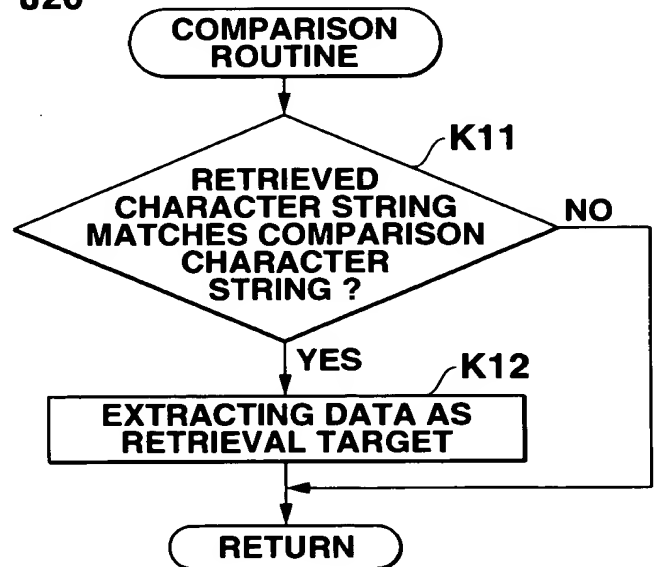


FIG.4B

(a)

number	name	state	weight	height	age	phone
1	Jhon	New York	63	130	22	407-228-6611
2	Chris	Florida	72	190	21	123-456-7890
3	Michael	Minnesota	65	163	27	101-202-3030
4	David	Iowa	63	145	34	523-761-0045
5	Mark	New York	65	152	30	832-962-9001
6	Daniel	Iowa	68	170	25	231-981-9454
7	George	Idaho	69	180	31	561-545-4389
8	Henry	Florida	71	165	22	239-203-9800
9	Joe	New Jersey	66	163	27	239-129-9898

ENCRYPTION

COLUMN KEY  
ROW KEY

(b)

number	name	state	weight	height	age	phone
1	wJls	noevjolc	qw	ywe	jh	igdltytfhDSk
2	ddGGa	h*/fDD	lr	Erw	hg	LKtYtDSkoKow
3	1jkl+P	gah{6xpVd	RK	Tyi	tY	hklIyDageQk
4	3eK@s	kHHS	kd	DHH	Kl	d+fDIKnBerJf
5	erlN	noevjolc	jD	iOO	Gv	wsdERfvW2Sdf
6	F>sSlu	kHHS	8u	lki	ij	1xcVImFmkjpo
7	(:ld?k	IJHFD	HH	lpa	LK	kjwDkJGvfDoa
8	rhJKd	h*/fDD	ew	Aii	jh	e419h-ka+qWH
9	ifd	ASoChijlO-	Df	lky	tY	qLFUiCVkj@kl

DECRYPTION

COLUMN KEY  
ROW KEY

(c)

number	name	state	weight	height	age	phone
1	Jhon	New York	63	130	22	407-228-6611
2	Chris	Florida	72	190	21	123-456-7890
3	Michael	Minnesota	65	163	27	101-202-3030
4	David	Iowa	63	145	34	523-761-0045
5	Mark	New York	65	152	30	832-962-9001
6	Daniel	Iowa	68	170	25	231-981-9454
7	George	Idaho	69	180	31	561-545-4389
8	Henry	Florida	71	165	22	239-203-9800
9	Joe	New Jersey	66	163	27	239-129-9898

FIG.5

00360"12102560

COLUMN KEY

number	name	state	weight	height	age	phone
NONE	"apple"	"orange"	ROW KEY	ROW KEY	"lemon"	ROW KEY

ROW KEY

number	
1	"tiger"
2	"dog"
3	"cat"
4	"mouse"
5	"elephant"
6	"cow"
7	"pig"
8	"rabbit"
9	"lion"

FIG.6

(a)

number	name	state	weight	height	age	phone
1	Jhon	New York	63	130	22	407-228-6611
2	Chris	Florida	72	190	21	123-456-7890
3	Michael	Minnesota	65	163	27	101-202-3030
4	David	Iowa	63	145	34	523-761-0045
5	Mark	New York	65	152	30	832-962-9001
6	Daniel	Iowa	68	170	25	231-981-9454
7	George	Idaho	69	180	31	561-545-4389
8	Henry	Florida	71	165	22	239-203-9800
9	Joe	New Jersey	66	163	27	239-129-9898

ENCRYPTION COMPOSITE KEY

(b)

number	name	state	weight	height	age	phone
1	wJls	noevjolc	xo	qwe	jh	dfghaJ;lkqlu
2	ddGGa	h*/fDD	wi	kIA	hg	qwTyIBnDFIKj
3	1jkl+P	gah{6xpVd	hi	IKJ	tY	DafgiqlkimD-
4	3eK@s	kHHS	s?	SGA	KI	hi*khaTygfXd
5	erlN	noevjolc	d-	ASD	Gv	8uyDBmAkolka
6	f>sSlu	kHHS	I*	qoK	ij	jhtvbnMKJASW
7	(:ld?k	IJHFD	df	sLL	LK	IQwSRyuiokjq
8	rhJKd	h*/fDD	Ws	tyH	of	Dfha*kaqil
9	ifd	ASoChijlO-	qo	H2a	Ga	lkjHYAGoiuq

DECRYPTION COMPOSITE KEY

(c)

number	name	state	weight	height	age	phone
1	Jhon	New York	63	130	22	407-228-6611
2	Chris	Florida	72	190	21	123-456-7890
3	Michael	Minnesota	65	163	27	101-202-3030
4	David	Iowa	63	145	34	523-761-0045
5	Mark	New York	65	152	30	832-962-9001
6	Daniel	Iowa	68	170	25	231-981-9454
7	George	Idaho	69	180	31	561-545-4389
8	Henry	Florida	71	165	22	239-203-9800
9	Joe	New Jersey	66	163	27	239-129-9898

FIG.7

COMPOSITE KEY

number	name	state	weight	height	age	phone
NONE	"apple"	"orange"	"bananatiger"	"lycheetiger"	"lemon"	"apricottiger"
NONE	"apple"	"orange"	"bananadog"	"lycheedog"	"lemon"	"apricotdog"
NONE	"apple"	"orange"	"bananacat"	"lycheecat"	"lemon"	"apricotcat"
NONE	"apple"	"orange"	"bananamouse"	"lycheemouse"	"lemon"	"apricotmouse"
NONE	"apple"	"orange"	"bananaelephant"	"lycheeelephant"	"lemon"	"apricotelephant"
NONE	"apple"	"orange"	"bananacow"	"lycheecow"	"lemon"	"apricotcow"
NONE	"apple"	"orange"	"bananapig"	"lycheepig"	"lemon"	"apricotpig"
NONE	"apple"	"orange"	"bananarabbit"	"lycheerabbit"	"lemon"	"apricotrabbit"
NONE	"apple"	"orange"	"bananalion"	"lycheelion"	"lemon"	"apricotlion"

COLUMN KEY

number	name	state	weight	height	age	phone
NONE	"apple"	"orange"	"banana" + ROW KEY	"lychee" + ROW KEY	"lemon"	"apricot" + ROW KEY

ROW KEY

number	
1	"tiger"
2	"dog"
3	"cat"
4	"mouse"
5	"elephant"
6	"cow"
7	"pig"
8	"rabbit"
9	"lion"

FIG.8



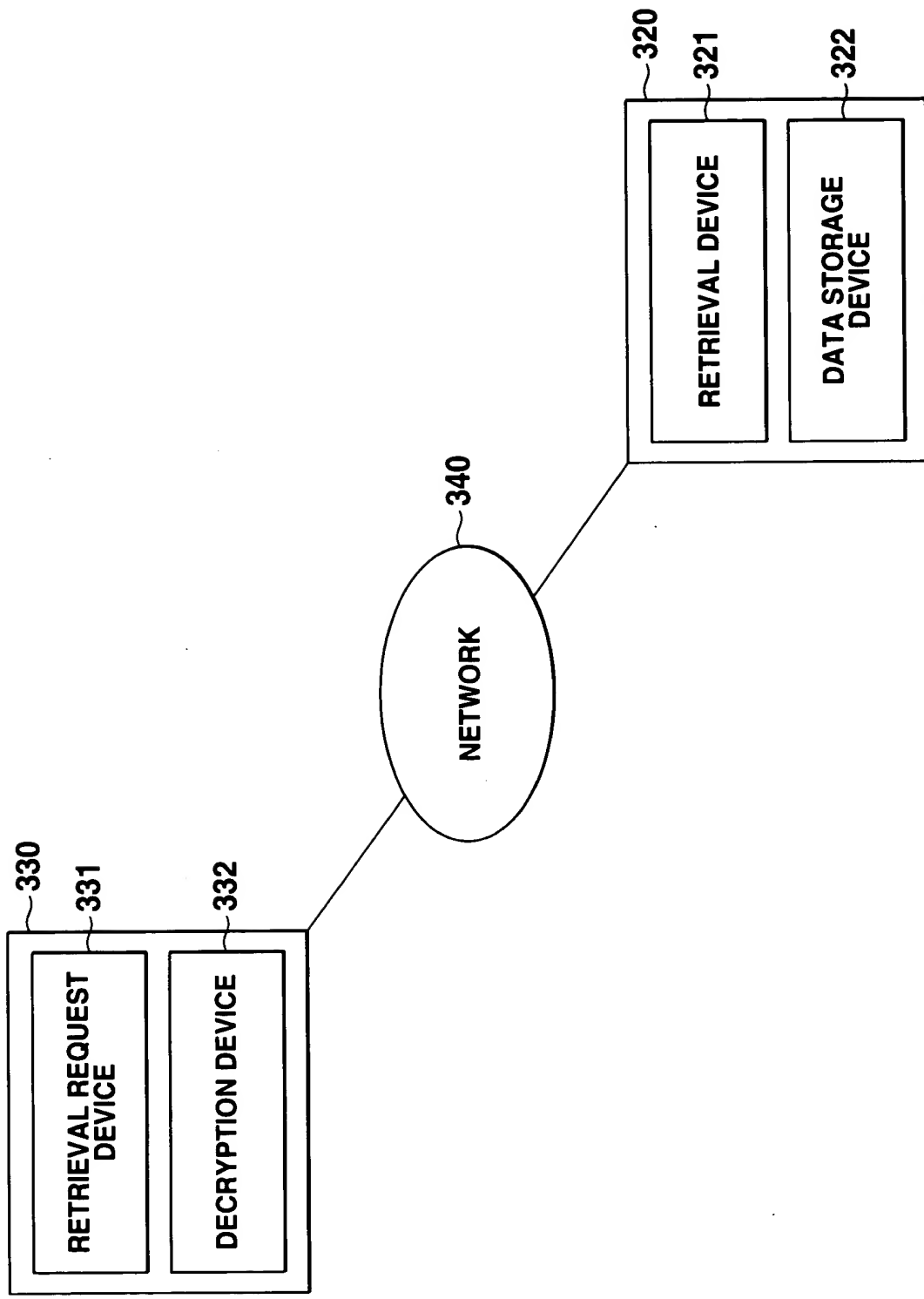
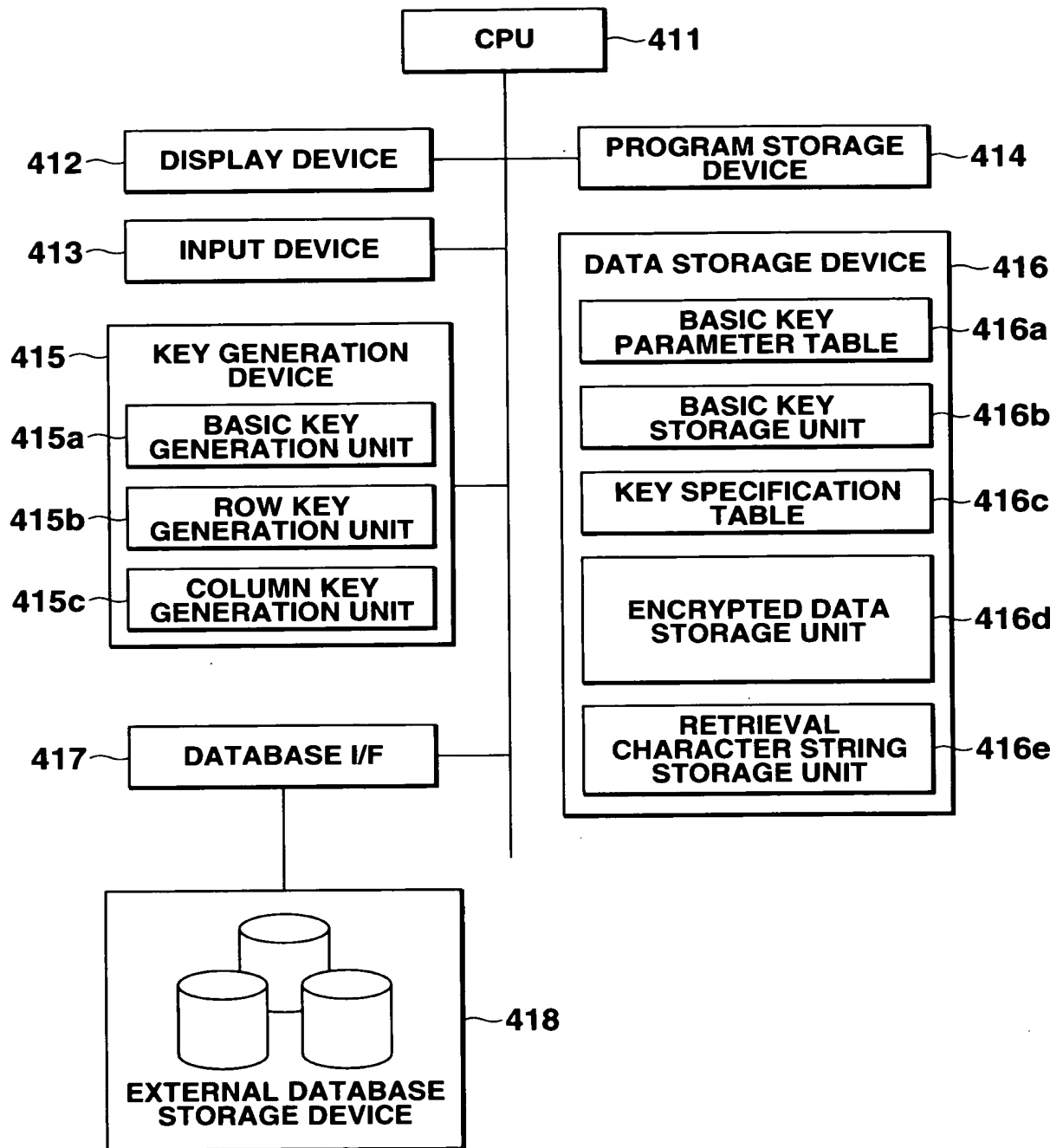


FIG.9



**FIG.10**

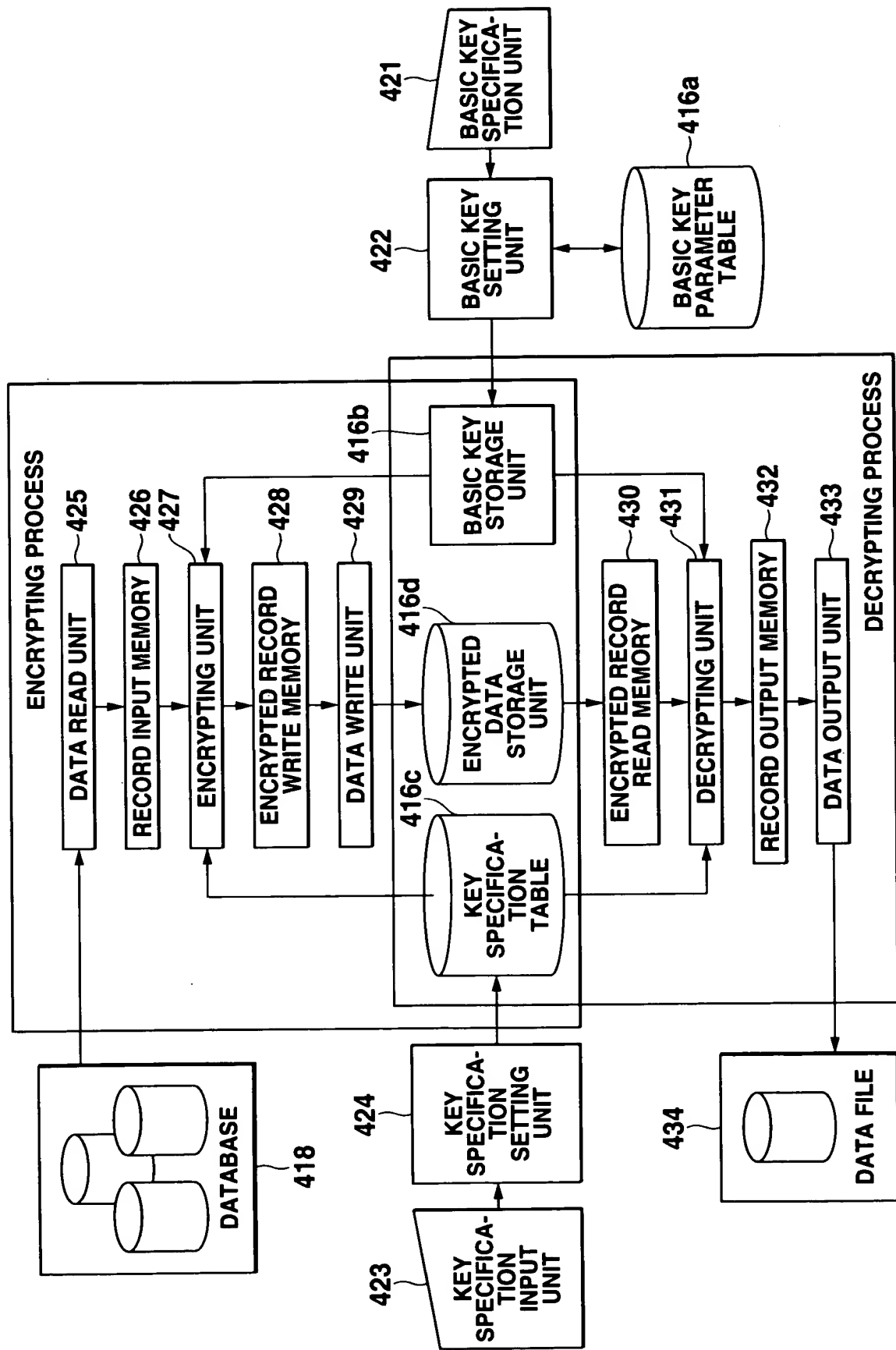
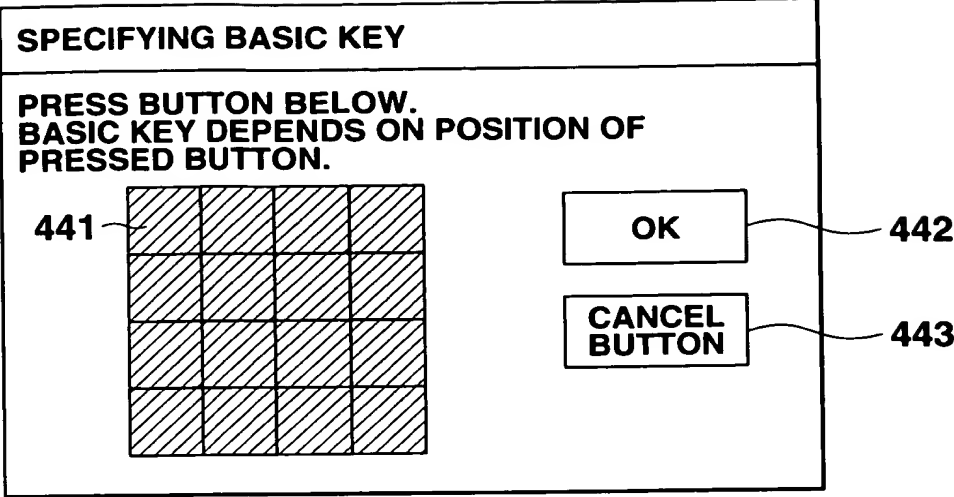


FIG.11

009260" 12102960



**FIG.12**

**BASIC KEY PARAMETER TABLE**

POSITION OF BUTTON	BASIC PARAMETER VALUE	416a
1	5	
2	7	
3	9	
4	11	
5	13	
6	15	
7	17	
8	19	
9	21	
10	23	
11	25	
12	27	
13	29	
14	31	
15	33	
16	35	

**FIG.13**

**SPECIFYING KEY SPECIFICATION**

**SPECIFY ENCRYPTION SYSTEM IN EACH COLUMN ITEM.**  
**0:NON-ENCRYPTION    1:ROW KEY    2:COLUMN KEY**

COLUMN NUMBER	ENCRYPTED KEY
1	0
2	ROW KEY
3	COLUMN KEY
4	COLUMN KEY
5	ROW KEY
⋮	⋮
n	

OK 452

CANCEL BUTTON 453

**FIG.14**

COLUMN NAME	COLUMN NUMBER	ENCRYPTED KEY
(code)	1	0
(name)	2	ROW KEY
(state)	3	COLUMN KEY
(age)	4	COLUMN KEY
(phone)	5	ROW KEY

**FIG.15**

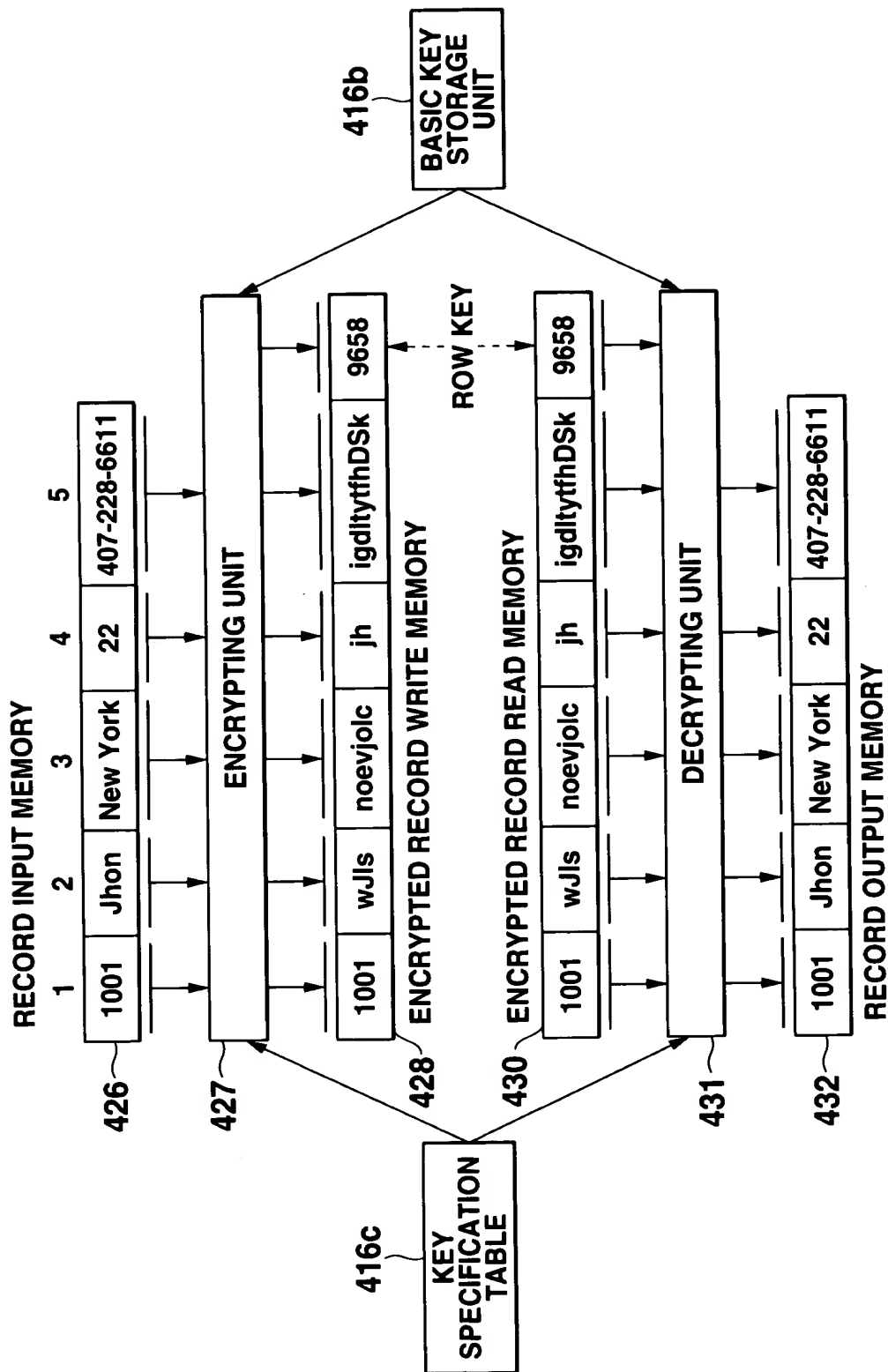
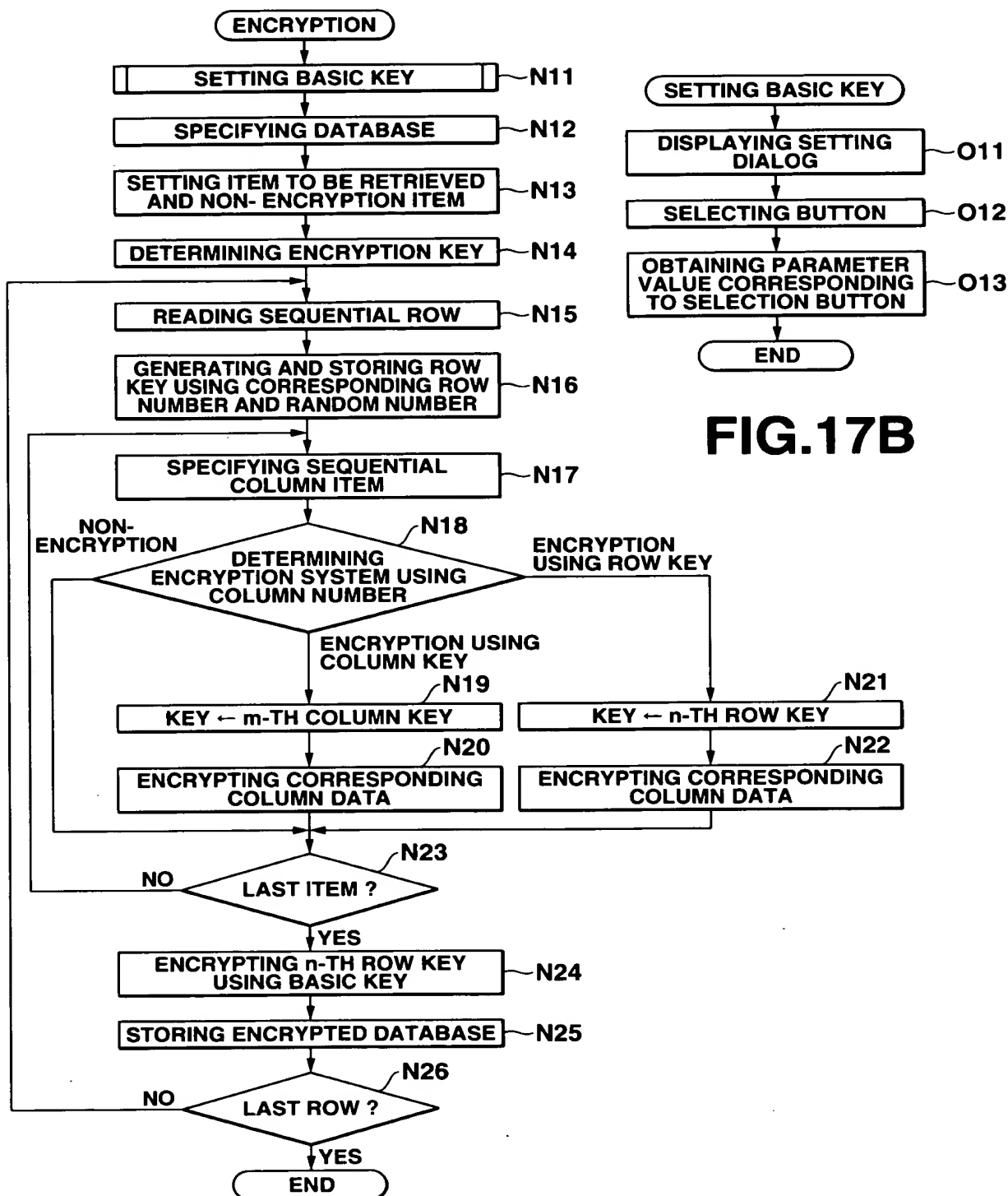


FIG.16

# SECRET



**FIG.17B**

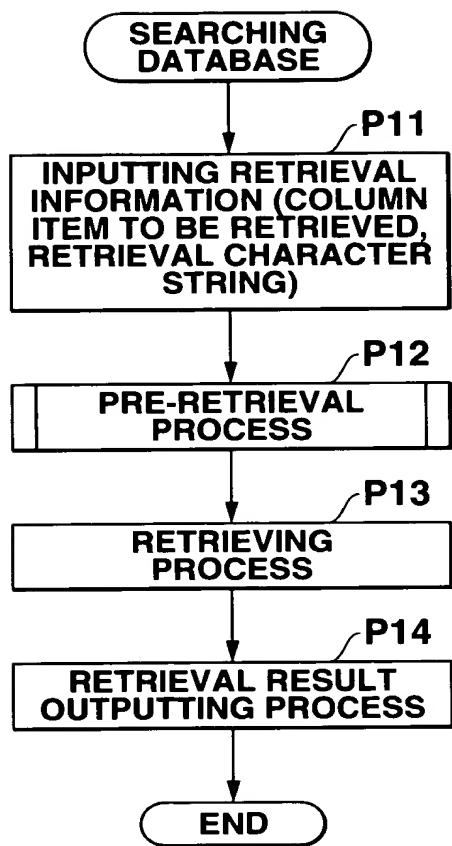


FIG.18A

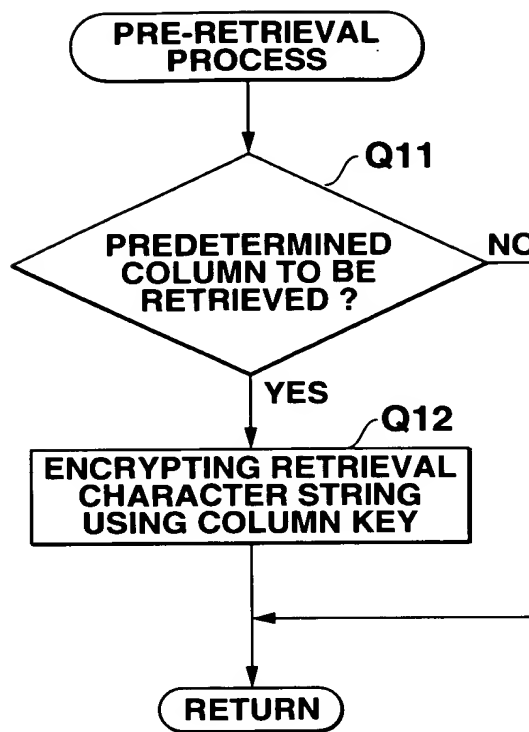
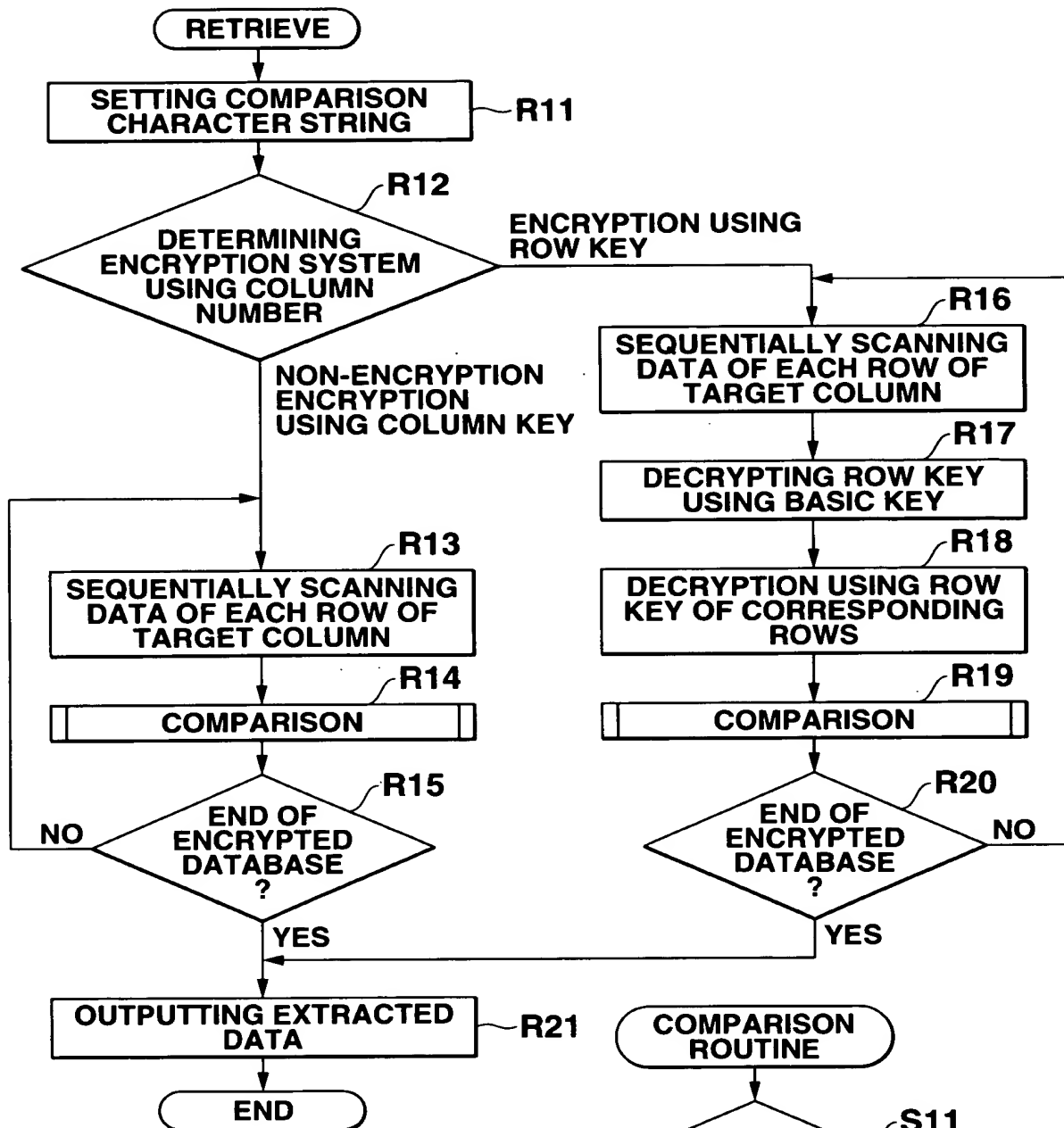
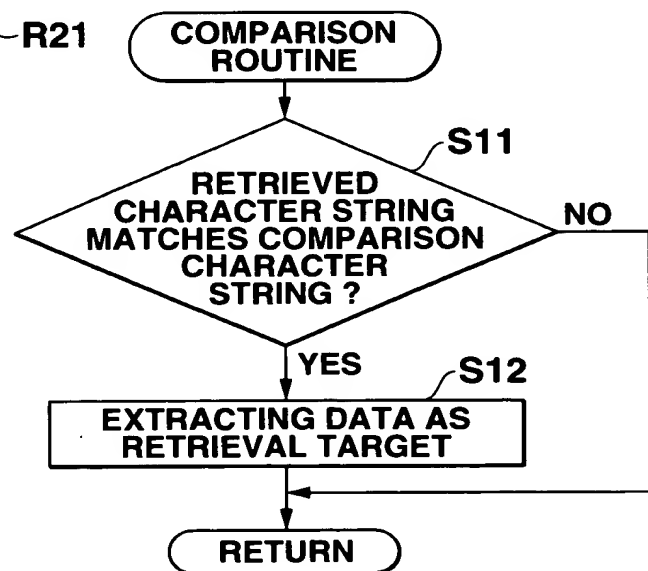


FIG.18B





**FIG.19A**



**FIG.19B**

(a)

number	name	state	age	phone
1001	Jhon	New York	22	407-228-6611
1002	Chris	Florida	21	123-456-7890
1003	Michael	Minnesota	27	101-202-3030
1004	David	Iowa	34	523-761-0045
1005	Mark	New York	30	832-962-9001
1006	Daniel	Iowa	25	231-981-9454
1007	George	Idaho	31	561-545-4389
1008	Henry	Florida	22	239-203-9800
1009	Joe	New Jersey	27	239-129-9898

ENCRYPTION COLUMN KEY  
ROW KEY

(b)

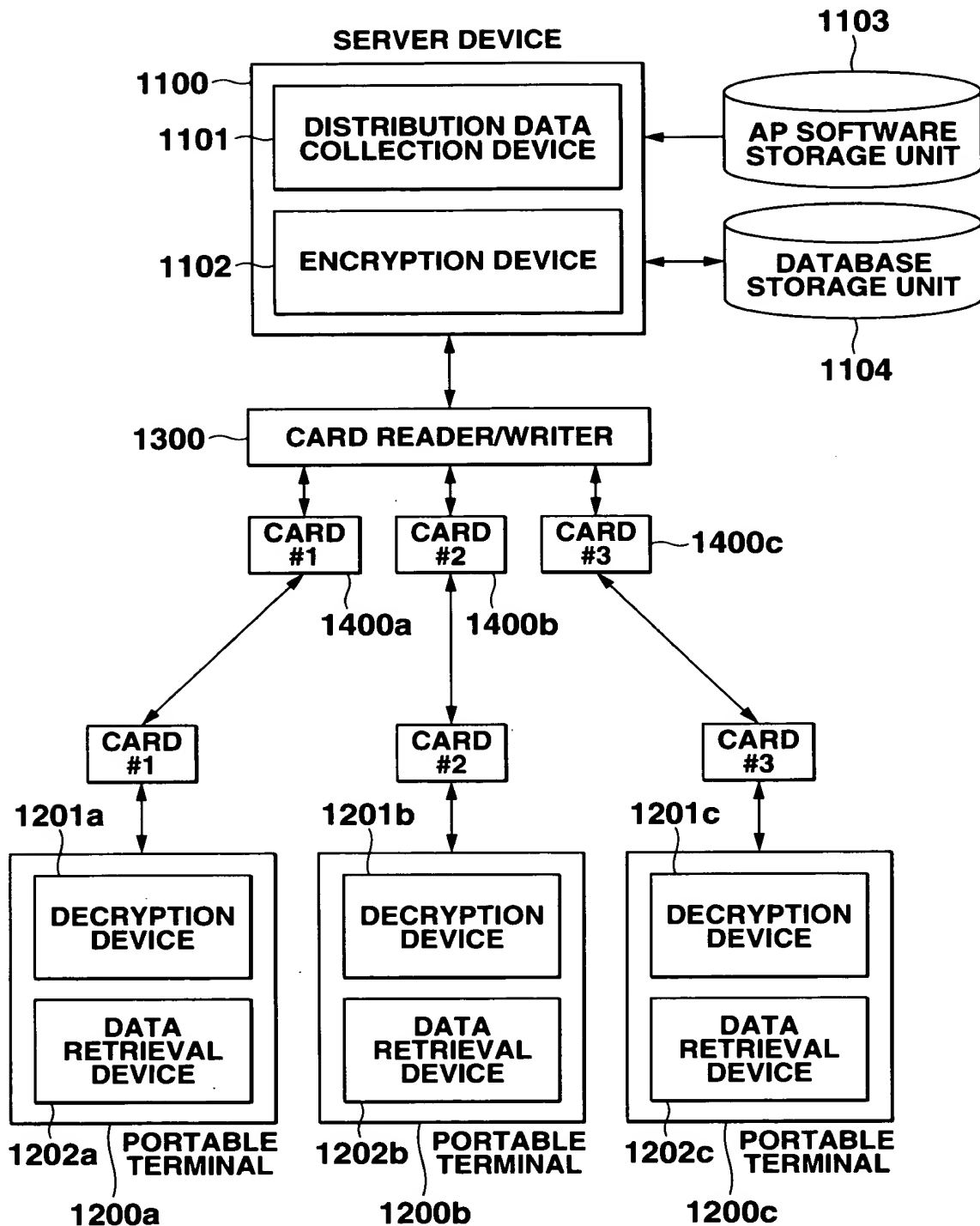
number	name	state	age	phone	line key
1001	wJls	noevjolc	jh	igdltytfhDSk	9658
1002	ddGGa	h*/fDD	hg	LKtYtDSkoKow	9143
1003	1jkl+P	gah{6xpVd	tY	hkliydageQk	8278
1004	3eK@s	kHHS	Kl	d+fDIKnBerJf	4358
1005	erlN	noevjolc	Gv	wsdERfvW2Sdf	5784
1006	f>sSlu	kHHS	ij	1xcVImFmkjpo	9743
1007	(:ld?k	IJHFD	LK	kjwDkJGvfDoa	3935
1008	rhJKd	h*/fDD	jh	e419h-ka+qwH	7412
1009	ifd	ASoChijlO-	tY	qLFUiCVkj@kl	9593

DECRYPTION COLUMN KEY  
ROW KEY

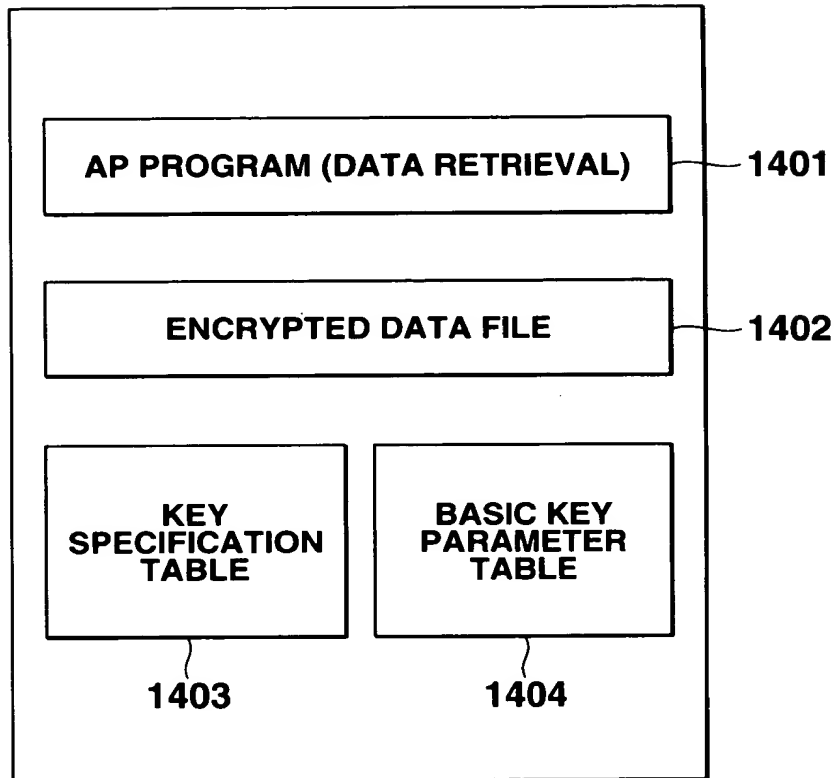
(c)

number	name	state	age	phone
1001	Jhon	New York	22	407-228-6611
1002	Chris	Florida	21	123-456-7890
1003	Michael	Minnesota	27	101-202-3030
1004	David	Iowa	34	523-761-0045
1005	Mark	New York	30	832-962-9001
1006	Daniel	Iowa	25	231-981-9454
1007	George	Idaho	31	561-545-4389
1008	Henry	Florida	22	239-203-9800
1009	Joe	New Jersey	27	239-129-9898

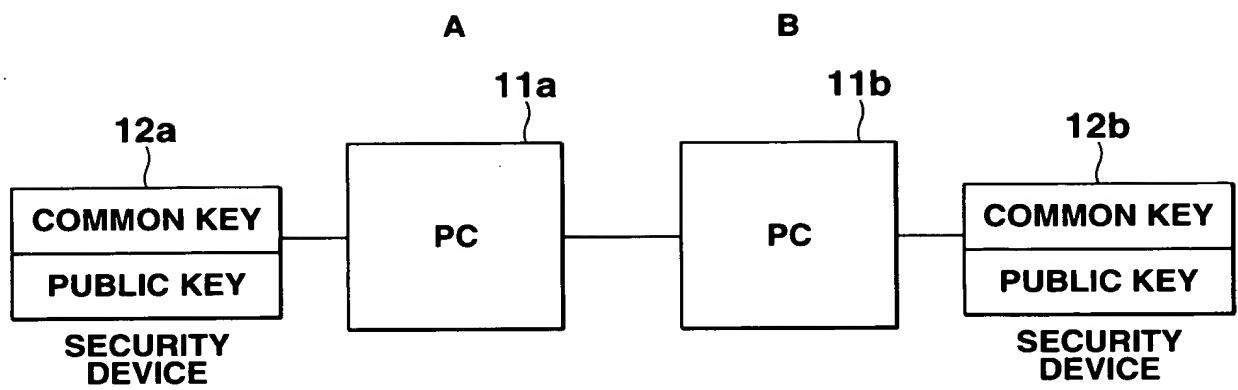
FIG.20



**FIG.21**



**FIG.22**



**FIG.23**

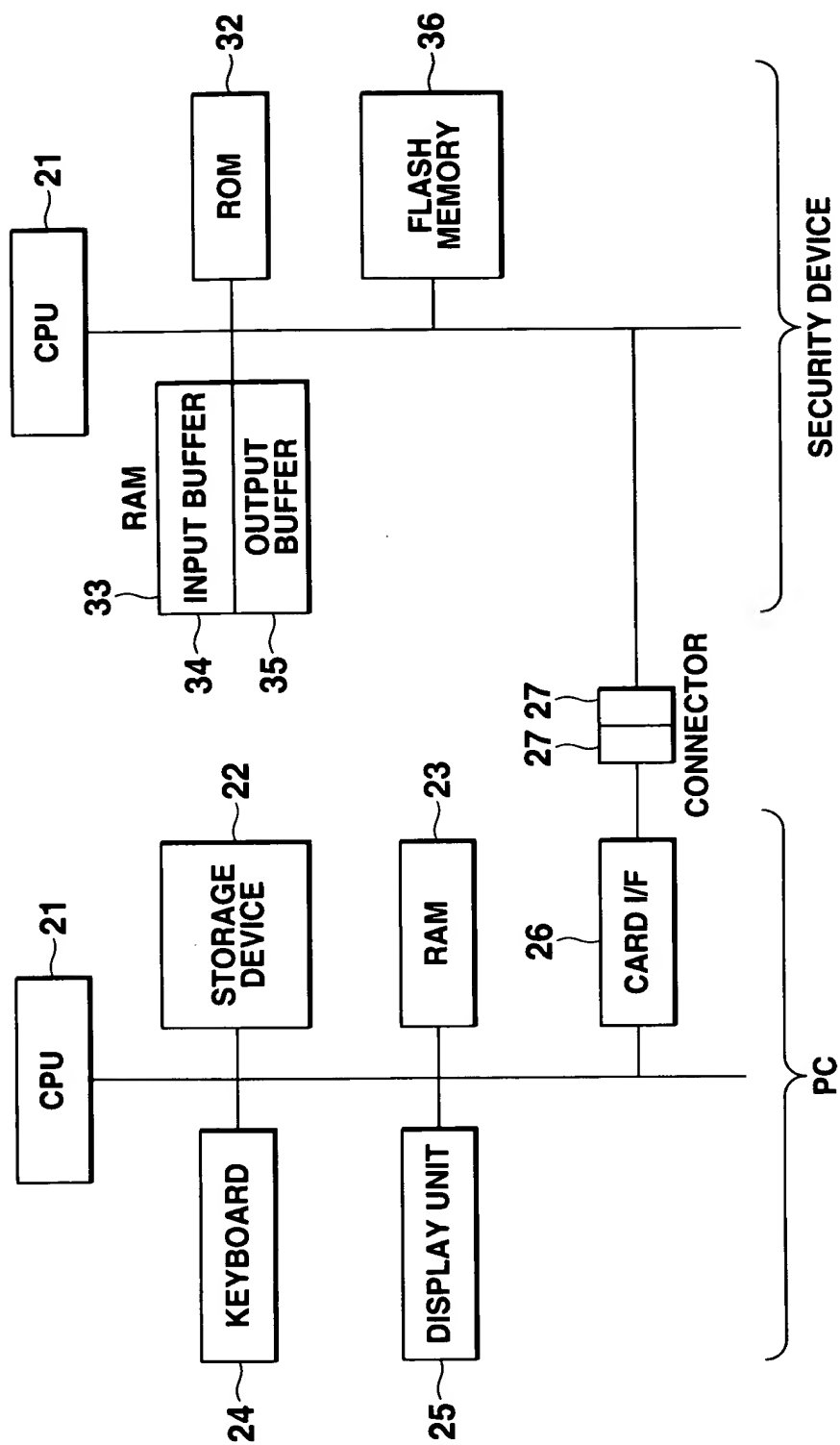
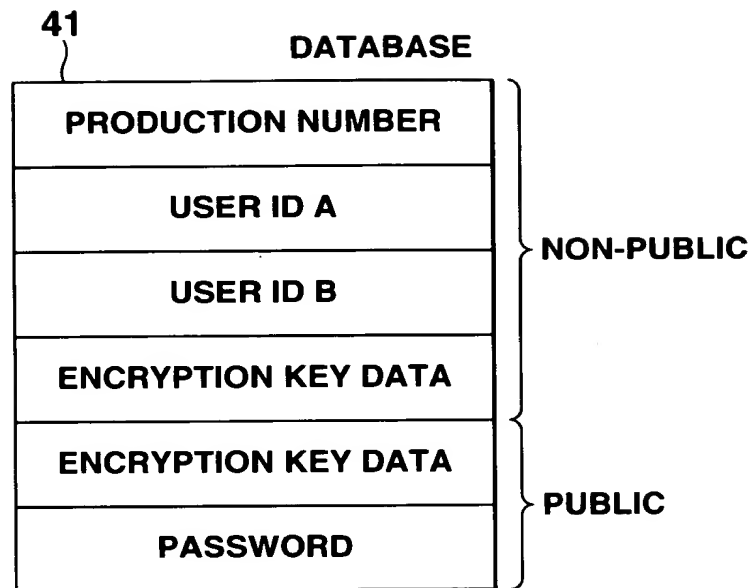


FIG.24

[illegible]

**FIG.25**

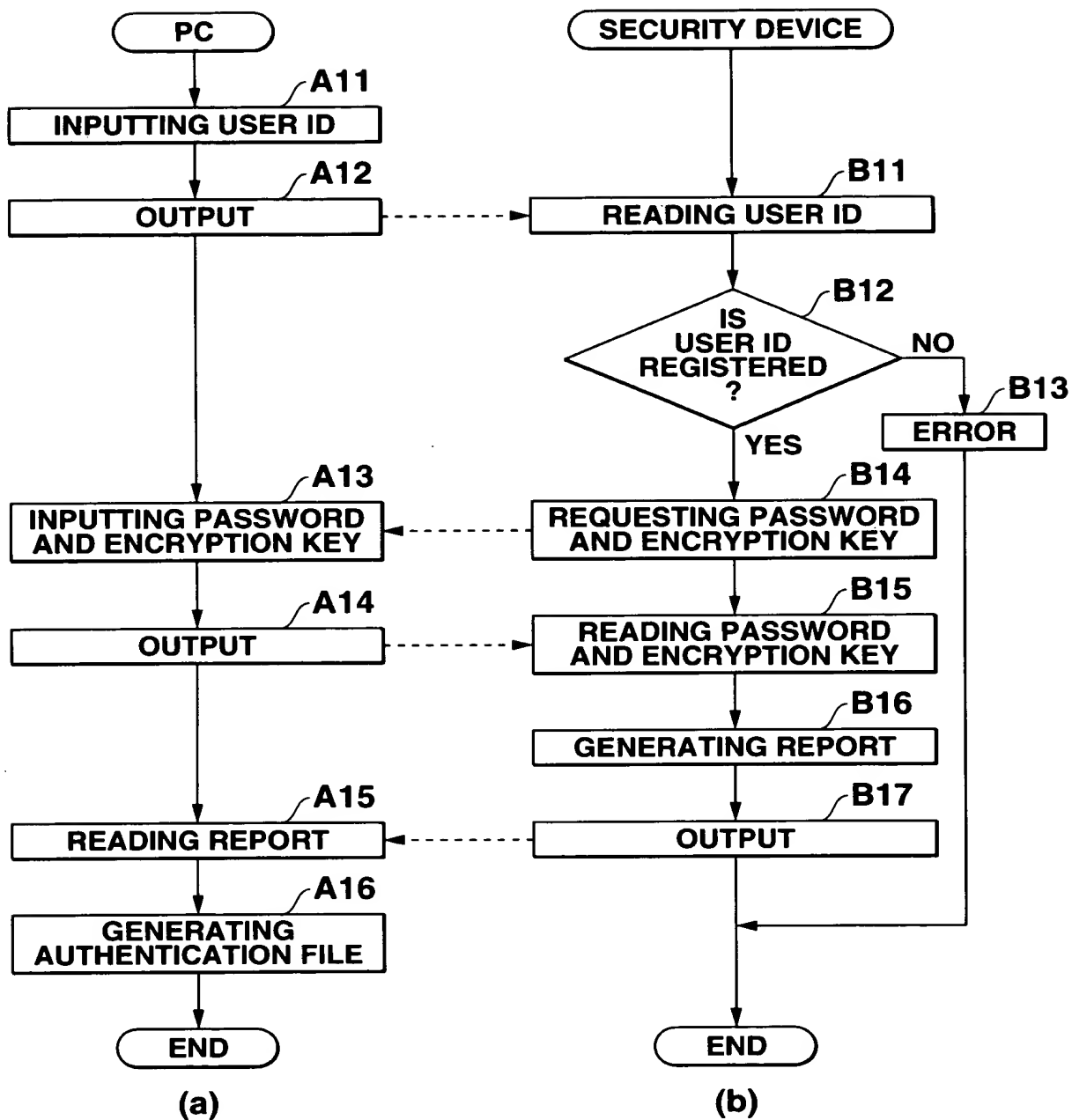


FIG.26



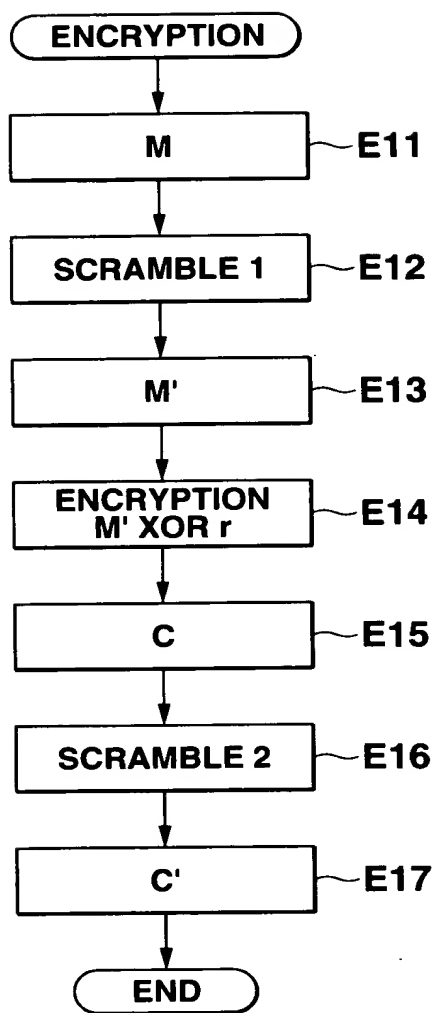
```

graph TD
    subgraph (a) PC
        C11([C11]) --> C12[INPUTTING USER ID AND PASSWORD]
        C12 --> C121{C121}
        C121 -- NO --> C16[ALARM]
        C121 -- YES --> C13[OUTPUTTING USER ID AND PASSWORD]
        C13 --> C14[READING AUTHENTICATION REPORT]
        C14 --> C15{C15}
        C15 -- NO --> C16
        C15 -- YES --> C17[TRANSMITTING AFTER ADDING REPORT TO PLAINTEXT]
        C17 --> C18[RECEPTION]
        C18 --> C19[TRANSMITTING PROCESS]
        C19 --> ENDa([END])
    end

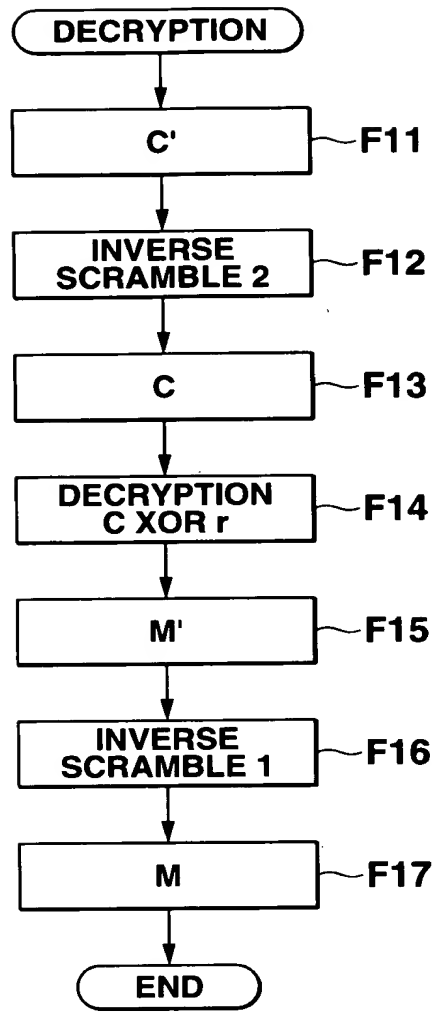
    subgraph (b) SECURITY DEVICE
        D11[READING USER ID AND PASSWORD] --> D12[AUTHENTICATION]
        D12 --> D13[GENERATING AUTHENTICATION REPORT]
        D13 --> D14[READING PLAINTEXT]
        D14 --> D15{REPORT EXISTING?}
        D15 -- NO --> D16[ERROR]
        D15 -- YES --> D17[ENCRIPTING PROCESS]
        D17 --> D18[TRANSMITTING ENCRYPTED DATA AND PUBLIC KEY]
        D18 --> ENDb([END])
    end

    C13 -.-> D11
    C14 -.-> D13
    C17 -.-> D14
    D18 -.-> C18
  
```

**(a)**

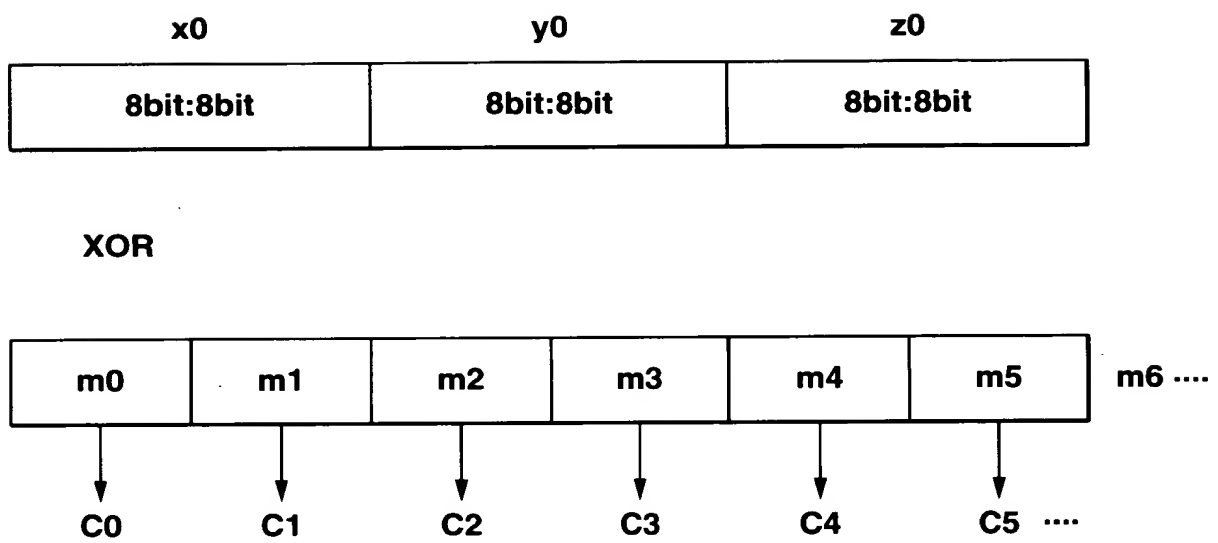


**FIG.28A**



**FIG.28B**

005260-11102560



**FIG.29**

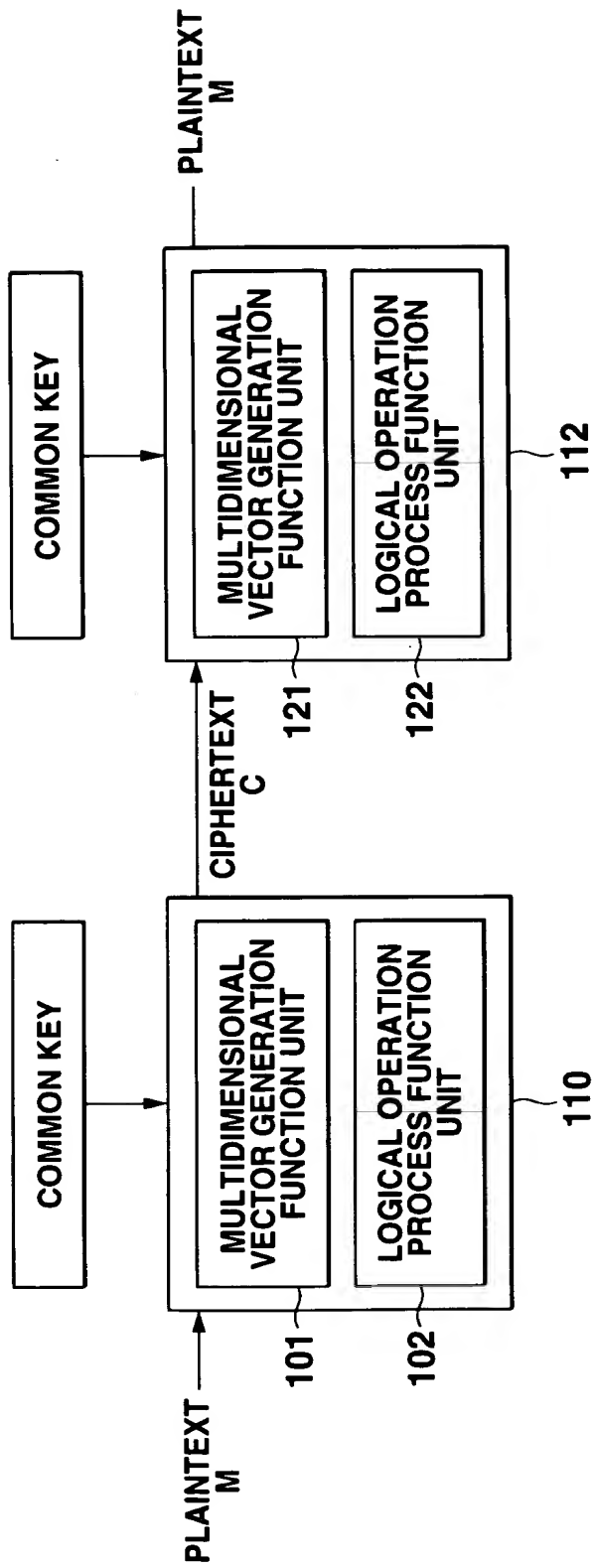


FIG.30

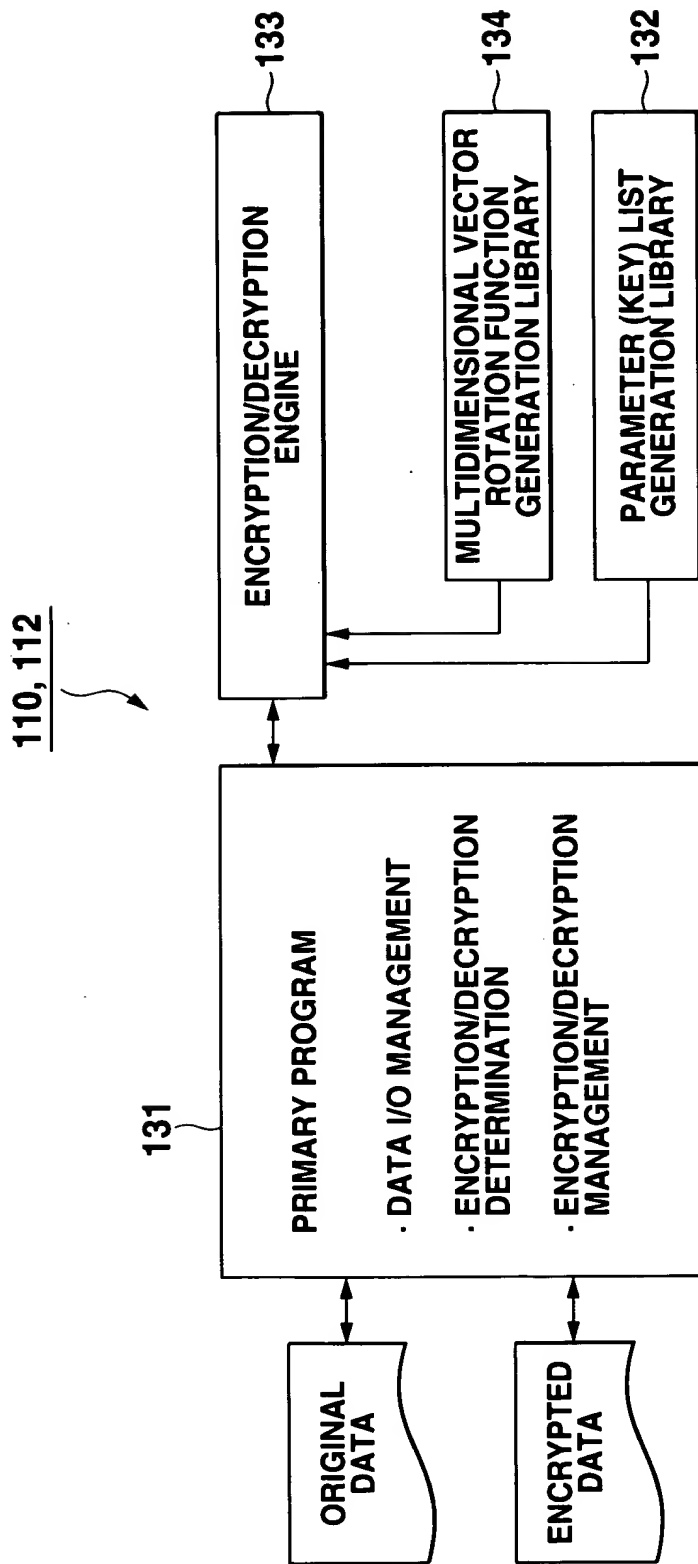
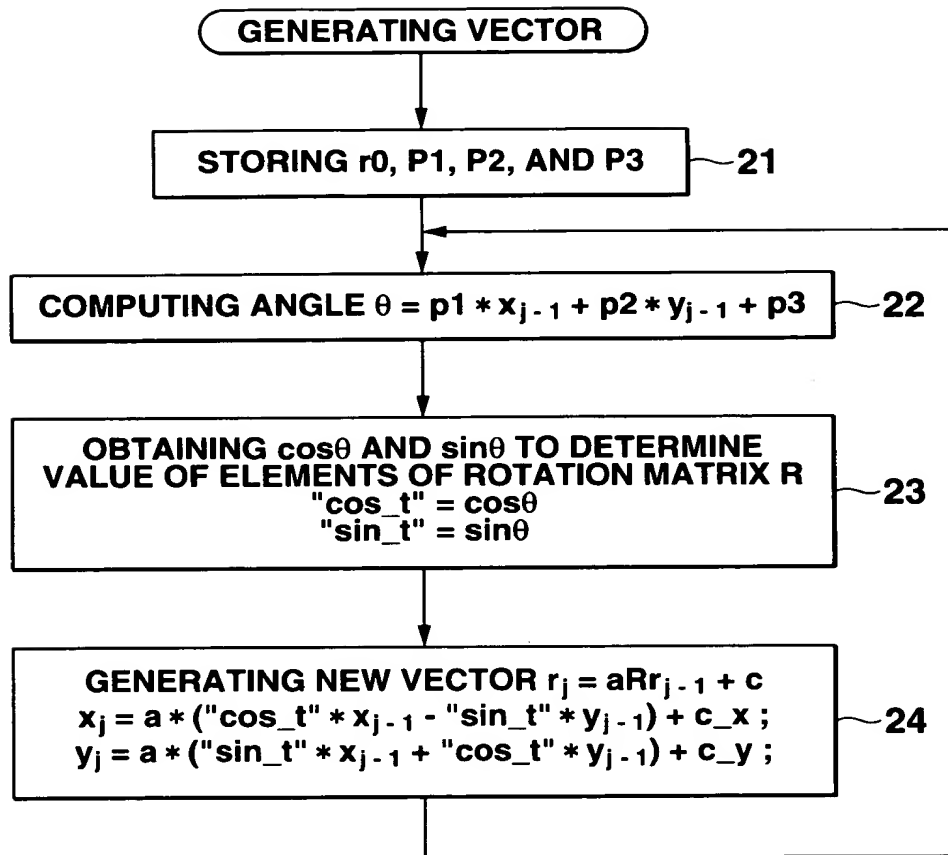


FIG.31



**FIG.32**

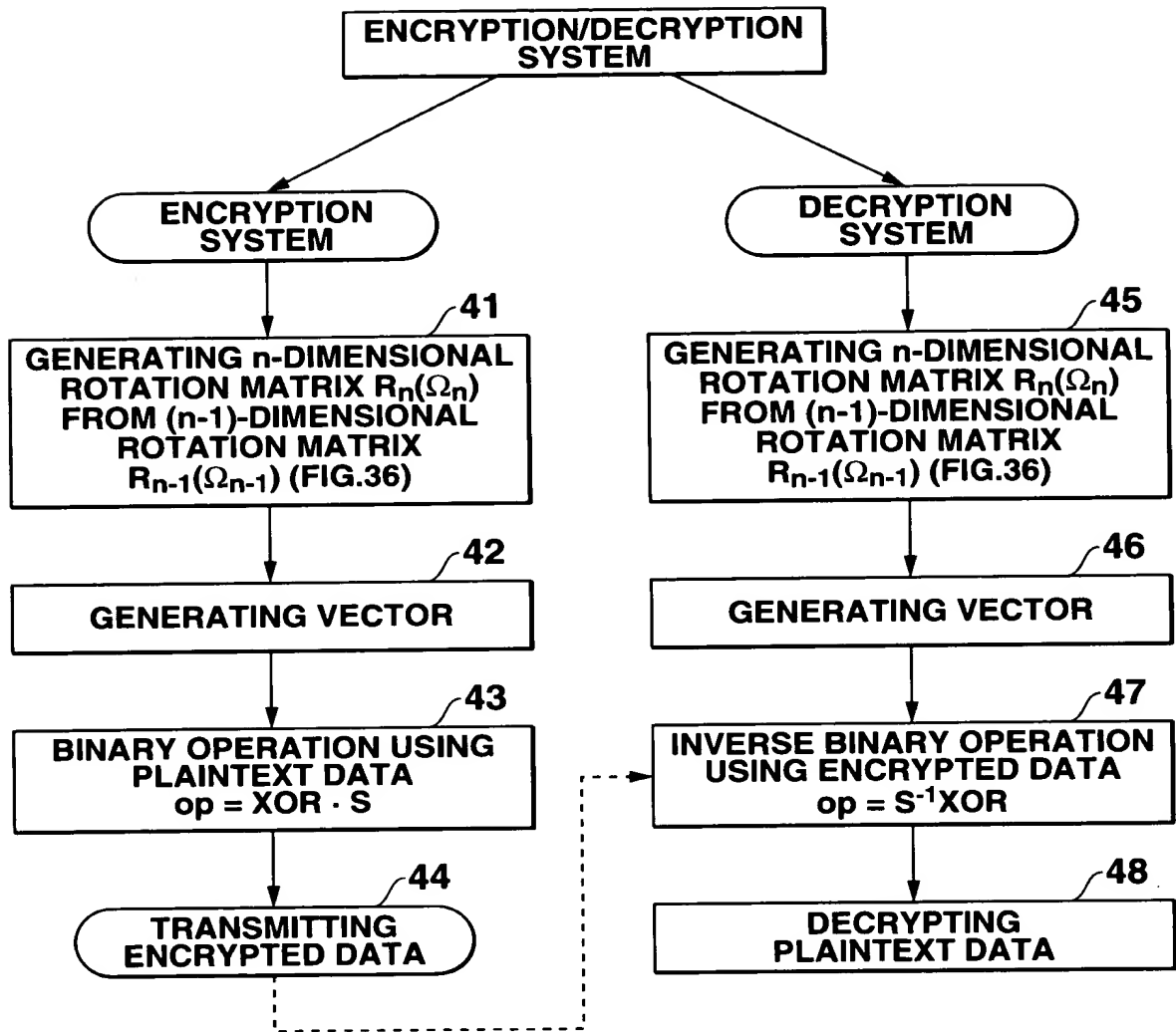


FIG.33

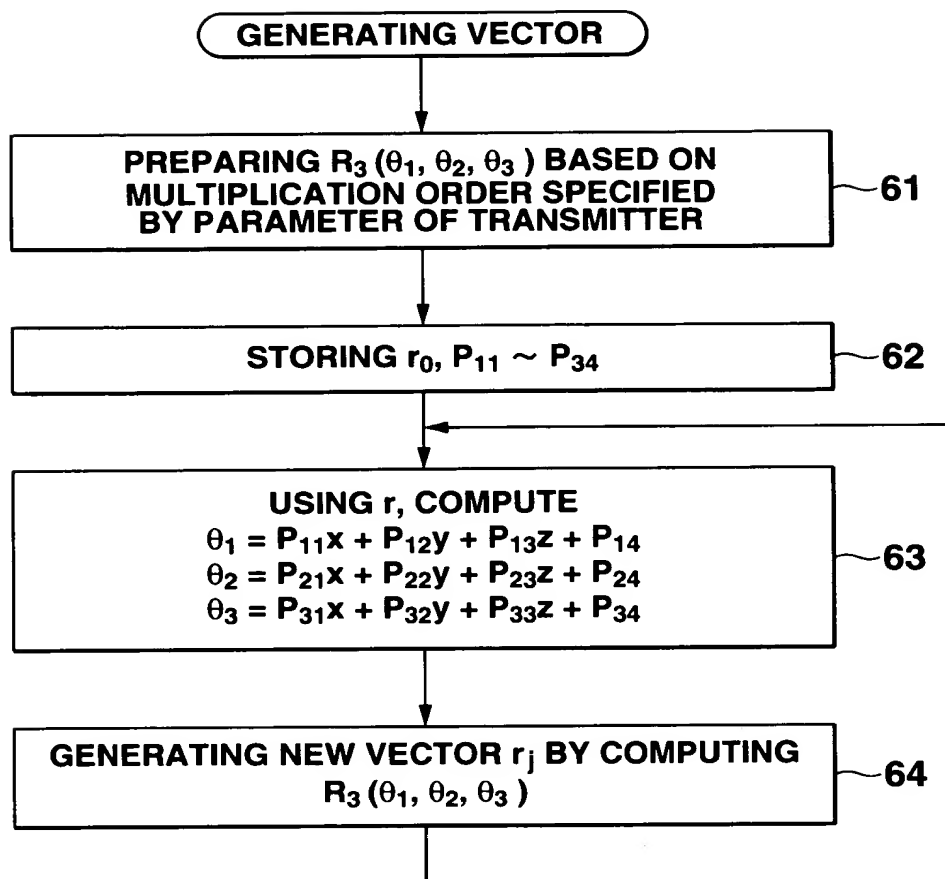
```

graph TD
    Start([DECIPHERING]) --> J0[j = 0]
    J0 --> Rcj[RETRIEVING Cj]
    Rcj --> Gn[GENERATING n-DIMENSIONAL ROTATION MATRIX Rn Ωn]
    Gn --> Grj[GENERATING VECTOR rj]
    Grj --> Mj[Mj = rj op-1 Cj]
    Mj --> CjComp{Cj COMPLETED?}
    CjComp -- YES --> End([END])
    CjComp -- NO --> Jplus1[j = j + 1]
    Jplus1 --> Rcj

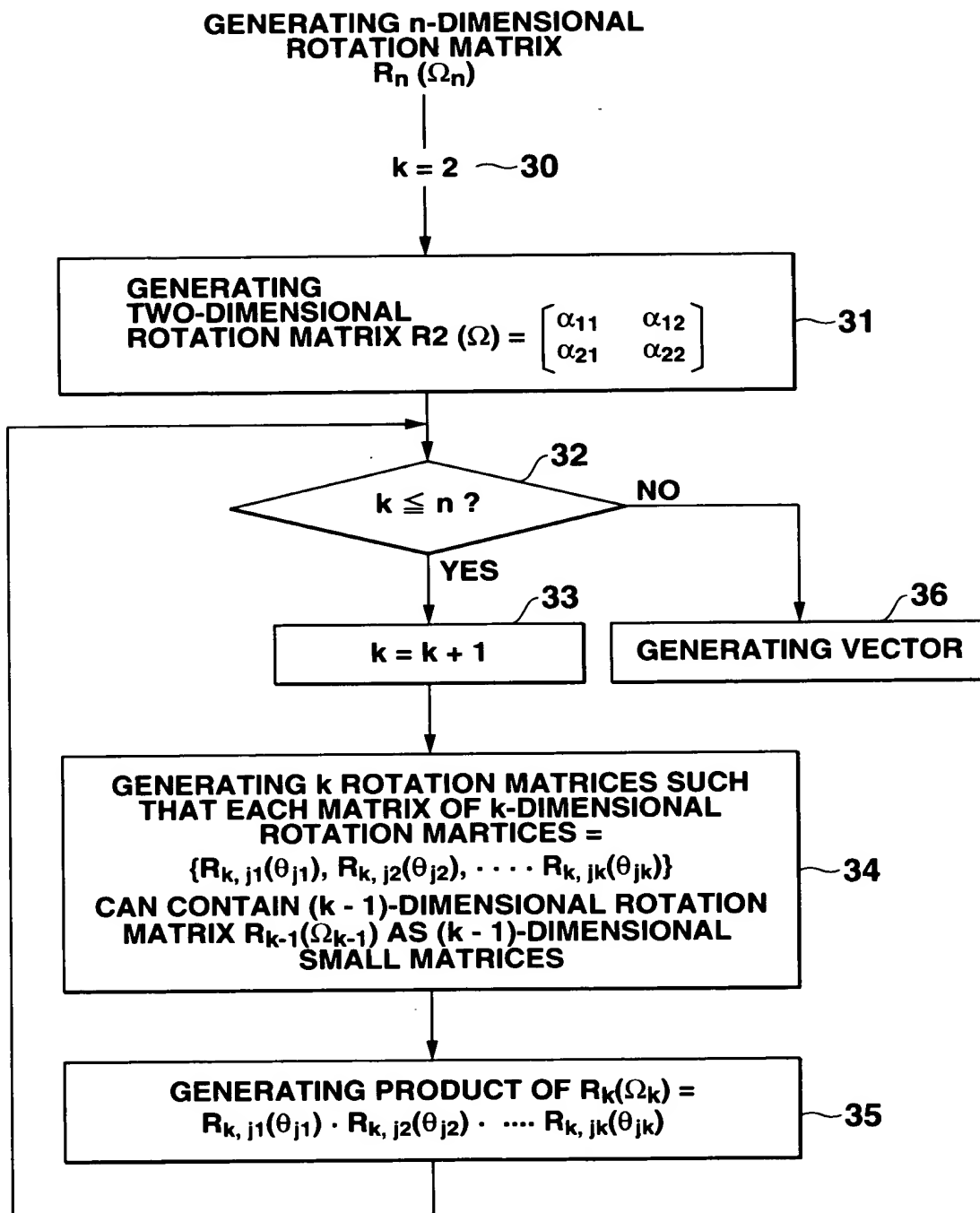
```

**FIG.34**





**FIG.35**



**FIG.36**

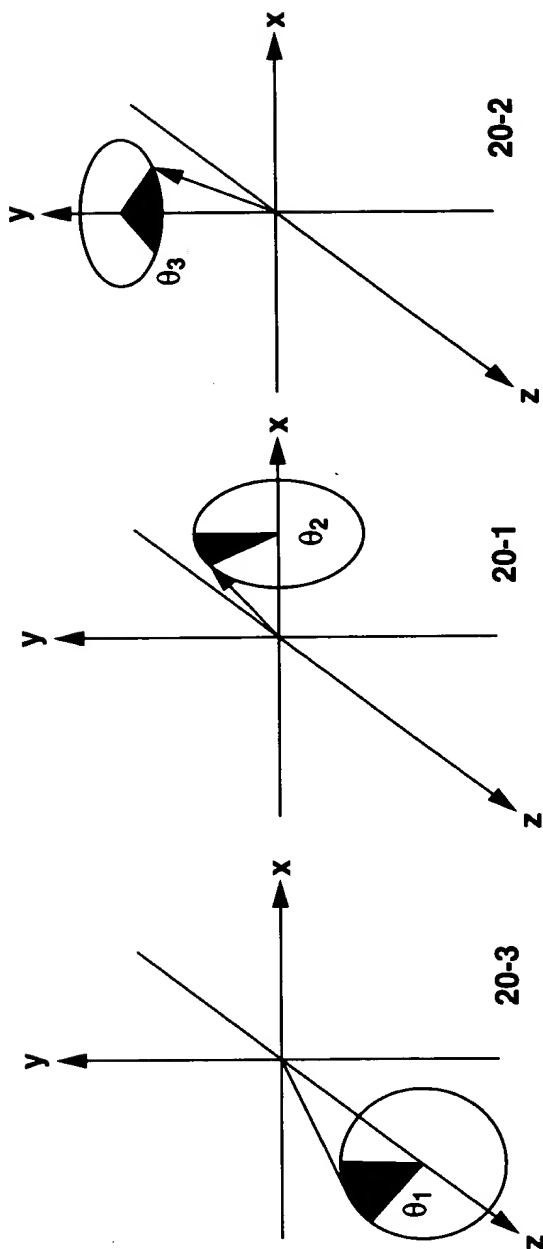


FIG.37A      FIG.37B      FIG.37C